

# MAIN CURRENTS

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## MAIN CURRENTS

IN MODERN THOUGHT

*A cooperative journal to promote the free association  
of those working toward the integration of all  
knowledge through the study of the whole of things,  
Nature, Man, and Society, assuming the universe  
to be one, dependable, intelligible, harmonious.*

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ALFRED STERN

## Historical Laws and Natural Laws

### THE CHALLENGE OF AN AGE-OLD ANTITHESIS

SINCE THE DAYS OF ANCIENT GREECE many scholars have realized that there exist some basic differences between natural science and history. Aristotle distinguished between science which analyses the constants and *φρόνησις*, a kind of practical wisdom which is interested in the contingent elements of life, government and history. The latter was considered by the Stagirite as a mass of documents, in contradistinction to the sciences, engaged in explaining and systematizing.

To the schoolmen *historia significat singulorum notitiam, vel expositionem seu descriptionem τοῦ ἑκείνου rei* (1), that is history means the knowledge of single events, or the development and description of the "because" of a thing. Francis Bacon shared this view, but insisted that history determines also the *time* and *space* of individual events. In the nineteenth century the French philosopher Cournot stressed Aristotle's antithesis by distinguishing the historical disciplines from theoretical science and from technical, practical knowledge. And after him, the German philosopher Wilhelm Dilthey came with his distinction between natural science and the sciences of the mind (*Geisteswissenschaften*), defining the latter as the "totality of sciences the object of which is historical, social reality." (2)

This notion of sciences of the mind has been attacked from various quarters. Wilhelm Windelband, another German thinker, reproached it with being unable to assign a satisfactory place to psychology, which, according to its subject matter, is a science of the mind—and even the basic one—while its method is that of a natural science. What psychology shares with natural sciences is the feature of ascertaining and gathering facts, in order to draw *general laws* from them. History, on the other hand, tries to describe and explain *individual* facts in their singularity. In other words: the natural sciences are interested in everything which, in the flow of the phenomena, is *repeated* in a uniform way. History, however, is interested above all in that "which one will never see twice"—"*ce que jamais on ne verra deux fois*"—to use a phrase of Vigny.

This fact may constitute one of the reasons for denying to history the character of a science. For if one accepts Aristotle's famous doctrine that "all science is of the universal" (τὸ δὲ τὴν ἐπιστήμην εἶναι καθόλου πᾶσαν) (3), then a discipline which, like history, is limited to the study of individual facts, cannot claim to be a science. To be sure, Aristotle later restricted this principle by admitting that the particular could be an object of science as far as

it is an instance of the universal. But even this affirmation cannot be made about all historical events. As Bergson showed us convincingly, science is only concerned with the aspect of *repetition* and will always manage to analyze a whole into elements which are approximately a reproduction of the past. Science can only work on what is supposed to repeat itself and which is thus withdrawn from the action of historical time. Now, if history is, according to Paul Valéry's definition, "*la science des choses qui ne se répètent pas*" (4)—the science of things which do not repeat themselves, then the term "science" attached to history cannot have the same meaning we usually give it when we speak of physical sciences. If history is to be regarded as a science, then it is necessary to redefine the word "science," perhaps in that very wide and liberal way proposed by the British philosopher Collingwood: "Science means any organized body of knowledge." (5) If we accept this definition, then we may regard history as a science, for in spite of its lack of generality it is an organized body of knowledge.

But what kind of a science is history? Is it an empirical or a deductive one? I think that Windelband made an overstatement when he declared: "What natural science and history have in common is their character as empirical sciences" (*Erfahrungswissenschaft*) (6); for without certain restrictions history can hardly be designated as an empirical science. In the nineteenth century the great French physiologist Claude Bernard divided the empirical sciences into *observational* and *experimental* sciences. "*L'observation est l'investigation d'un phénomène naturel, et l'expérience est l'investigation d'un phénomène modifié par l'investigateur*" (7) he said—observation is the investigation of a natural phenomenon, experimentation is the investigation of a phenomenon modified by the investigator. It is evident that, unlike the physicist, the historian cannot modify the conditions under which phenomena occur, for those which he studies are far beyond the reach of his action. Consequently, history is not an experimental science. Some historians have attempted to perform "mental experiments" to replace the laboratory experiments denied to them; but since mental experiments are purely "fictitious," the conclusions have had little weight.

However, if history is not an experimental science, perhaps it is an observational discipline. Unfortunately, this cannot be affirmed without reservation either, for only the history of the present can be an object of direct observation. But the present is short, and the past is long, so that observable history represents only a small section of the historian's subject matter. For the greater part of history we have to accept Collingwood's thesis that "history... is a science whose business is to study events not accessible to our observation, and to study these events inferentially..." (8)

Thus if history is not an experimental science and—as far as its major part is concerned—not an observational

science, we have to ask ourselves in which sense its designation as an "empirical science" can be justified. The only thing which could be affirmed in this respect is that *on principle* the subject matter studied by history belongs to the observable, empirical world. *Factually*, however, only one of its sections—the history of the present—is truly accessible to human observation.

The majority of empirical sciences are interested only in the relations among phenomena which, while repeating themselves, remain identical. These relations are the *general laws*, the search for which is the main purpose of the natural sciences. According to a famous term coined by Windelband these law-seeking sciences are called *nomothetic* sciences, from the Greek νομο-θέτης or lawgiver. Other empirical disciplines are mainly interested in the *individual content* of the phenomena, which is *not repeated*. These are the historical disciplines, which Windelband characterized by the epithet *idiographic* (9) from the Greek ἴδιος, own, peculiar, distinct, and γράφω, to write, to describe.

For the *nomothetic* sciences the individual phenomenon is interesting only as an example fit to serve as an illustration for a general law. For the *idiographic*, or historical disciplines, the phenomenon is interesting for its particular content. Natural laws are invariable and extra-temporal, while historical events are variable and confined to a definite point of time. Certain facts are comprehensible only because they occur at a certain moment of history. Thus, for example, the Baroque style could develop only after the Renaissance had exhausted all its possibilities. Only by its emergence at that definite moment does the Baroque become comprehensible as an historical phenomenon.

Of course, there may be some overlapping between nomothetic or generalizing and idiographic or individualizing sciences. It is possible to submit the same phenomena to an historical and to a systematic investigation, for the character of singularity is relative. A phenomenon which, during long periods, does not undergo any change and can therefore be treated nomothetically, may reveal itself in the long run, as a single, unique phenomenon. The disappearance of a star or a sea can be the object of nomothetic research and constitute at the same time a single event of natural history. As a systematic science biology is nomothetic; as history of organic evolution it is an idiographic, individualizing science.

In my opinion it would be wrong to overstress Windelband's classification (later developed by Heinrich Rickert), and to consider *all* natural sciences as exclusively nomothetic and *all* historical sciences as strictly idiographic. I would rather say that in natural sciences nomothetic methods *prevail* over idiographic ones, while in historical disciplines idiographic methods *prevail* over nomothetic ones. This view implies the possibility of idiographic methods in natural sciences and of nomothetic procedures in historical disciplines.

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The first of these theses is generally admitted, for one can hardly deny the existence of natural history. The famous French historian Ernest Renan insisted forcefully on the historical aspect of exact sciences. In 1863 he wrote to his friend, the great French chemist Marcellin Berthelot: "What is chemistry in this conception? The history of the world's most ancient period, the history of the formation of the molecule." (10) By the new methods of determining the age of the earth by virtue of the residues of radio-active elements—especially lead 206—chemistry in our days has truly become, in part, an historical science.

As for the second thesis mentioned, that, although basically idiographic and individualizing, history could also establish certain general laws, it is one of the most controversial in modern philosophy of history. The celebrated German historian and philosopher Oswald Spengler, for example, denied both, historical laws and historical causality. "There are only physical laws"—he wrote, "the law... is anti-historical... Nature should be treated scientifically, about history one should make poems..." (*über Geschichte soll man dichten*) (11) One has, indeed, the impression that some of Spengler's historical affirmations belong to the realm of poetry.

Now, poetry is an art, and in itself there is nothing wrong about art in history. Even a philosopher so deeply rooted in science as Bertrand Russell declares that history is and should be both an art and a science. (12) But by art he means only the historian's gift to present the characters of a given period "with lively fancy, and not merely with the cold desire to chronicle known facts." (13) He praises Gibbon for having had "his feelings" about the historical persons he described, so that they came alive before the reader's mind. Nevertheless, Russell insists that history must remain scientific in that "the historian does his utmost to preserve fidelity to the facts." (14) Thus far I would say that poetry is excluded from history.

In his tendency to overstrain the dualism between history and natural science Spengler declared that mathematics and the principle of causality belong to the natural order, while the historical order of phenomena is characterized by chronology and governed by the idea of destiny. (*Schicksalsidee*) (15) Now the concept of "destiny" obviously belongs to the realm of pseudo-explanations, which never offer any possibility of being confirmed or refuted by concrete facts. Obviously, there is causality in history, since every historical event can be derived from another event. And if history is governed by the relation between causes and effects it is also governed by general laws. As Professor Hempel pointed out correctly, "a set of events can be said to have caused the event to be explained only if general laws can be indicated which connect 'causes' and 'effects'." (16) So far it can be affirmed that causality and the concept of general law are inseparable—in natural science as well as in history, although it should be admitted, with Professor Mario Bunge, that sociohistorical events have also some non-causal features

(dialectical, teleological, statistical, etc.). However, most of the general laws usually advanced to prove the presence of laws in history are physical, biological, psychological, meteorological, sociological or economic laws, and rarely specifically historical laws.

Recently Arnold Toynbee started a war against the "antinomianism of modern historians." A long chapter in the ninth volume of his *Study of History* is devoted to this polemic. Toynbee reproaches his colleagues with denying what he calls with an archaic term "the working of laws of Nature in history," although in general not the validity of natural laws in history is denied but the validity of specifically historical laws. It is almost a euphemism to say that Toynbee "reproaches" his colleagues with denying laws in history. What Toynbee does is accuse them of "hybris" and "heresy," for, according to this modern Savonarola the natural law of history is "the law of God." (17)

I believe it unnecessary to revive the Inquisition in order to fight those who deny any historical law, for the question is not *aut Caesar, aut nihil*. It seems rather that at their beginnings all sciences—even the physical ones—are idiographic, individualizing, for before being able to establish general laws every science must describe each single phenomenon with the greatest care, as if it were a question of a purely individual case. Before being able to establish general laws the investigator does not know what, in the phenomena observed, is general and what is individual. Only later, when this distinction has become possible, can sciences become nomothetic.

The case of history is more complex. It remains attached to the idiographic, individualizing method and advances only hesitatingly toward generalizations. In fact those who search for historical laws are mostly not historians, but philosophers and sociologists. The reserved attitude of history toward nomothetic research is due to several factors. The main one is that in history facts are interesting to us in the first place for what is specific and individual in them, and only in the second place for what they may have in common with other facts.

Let us mention a few historical laws more or less accepted today by some schools of thought. The simplest and least discussed is probably the one which states that a victorious war strengthens the government and weakens the opposition, while a lost war strengthens the opposition and weakens the government. Some people would also accept the historical law expressed by Plato, when he stated that tyranny naturally arises out of democracy, and the most extreme forms of tyranny out of the most extreme excesses of liberty. (18)

Another historical law proclaims that, when in primitive times, one nation invades another and merges with it, the nation representing the lower level of civilization adopts the language and customs of the nation representing the higher level of civilization—no matter who is the

victor and who the vanquished. This law was verified in the case of the invasion of Gaul by the Romans, by the Germans and by the Normans. In the first case the victors represented the higher level of civilization, and the vanquished adopted their language and customs. In the second and third cases the victors represented the lower level of civilization and adopted the language and customs of the vanquished.

Let us also mention Comte's law of the three stages and Hegel's dialectical laws, which are supposed to be laws of logic and of historical evolution, the latter being considered a logic in action. In Marx's version these Hegelian dialectical laws form the ground work of all philosophy of history in the Soviet Union.

More recently the American historian Edward P. Cheyney declared he had found the following six historical laws: first, the law of continuity, which states that everything in history is the outcome of something preceding; second, the law of mutability, which states that unless nations can change as the times change they must die; third, the law of interdependence of individuals, classes, nations, which states that none of these entities can, in the long run, live at the expense of another one; fourth, the law of democracy, which states that all government tends to come under the control of all people; fifth, the law of free consent, which states that men cannot permanently be compelled; sixth and last, the law of "moral progress" based on the assumption that "moral influences in human affairs have become stronger and more widely extended than material influences." (19)

While the first three of these laws are fairly well grounded in historical realities the last three rather express the wishful thoughts of a gentle, noble-minded democrat. In claiming for these six statements the character of "natural laws" comparable to "the laws of gravitation, or of chemical affinity, or of organic evolution" (20) Cheyney certainly went too far. If there are historical laws, they never have the rigorous character of natural laws, and never allow us to calculate or predict future developments with an accuracy comparable to that of natural laws. "In order to perceive the irreversible or cyclical rhythm of development or a certain direction," writes Professor Raymond Aron, "a simplicity, a regularity and continuity would be necessary which are excluded by the accidents and the complexity of social events." (21) Professor Aron concludes that nomothetic thought in history results only in rather hazardous generalizations, in more or less partial laws, in constructed and probable formulas which faith and passion of partisans elevate to the rank of fatalities.

Earlier we came to the conclusion that since no historical event occurs magically, without a cause, but is always the outcome of another event, there is causality in history. And since causality implies general laws connecting causes and effects we had to admit that there are general laws in history. As specifically "historical" we may designate those among these general laws which allow us to explain his-

torical events, after they have occurred, as effects of other historical events, considered as their causes. However, these "historical laws" never allow us to predict concrete historical events but, at best, will make it possible to foresee, with some probability and a large margin of uncertainty, the general trend of future developments. Minds trained in the exact physical sciences sometimes have difficulty understanding these limitations of historical prognostics. By virtue of his calculations, based on the general laws of celestial mechanics, the French astronomer Leverrier deduced, in 1846, the existence of the hitherto unknown planet Neptune and designated exactly the spot in the sky where his German colleague Galle was to observe the new body a few days later. If historical laws never allow us such precise predictions it is not only because of the complexity of the factors involved in historical evolution. It is also—and mainly—because of the pre-eminence of the *human* factor in history. For in spite of all the progress in genetics, psychology and sociology, this human factor remains *unpredictable* to a large extent. Sir Charles Galton Darwin, who ventured to write the history of "the next million years," had to admit that the same century which witnessed the tremendous acclaim of Malthus' *Essay on Population* refuted the latter's prediction that the growth of the earth's population will outgrow agricultural production. The reasons were the "unforeseeable" developments in agricultural chemistry, the fantastic economic evolution of America, the worldwide establishment of railroads and steamships to carry America's surplus products to the old world, etc. The result was that, in contrast with Malthus' predictions, our planet's agricultural production increased at a rate greater than the population.

As a physicist, Professor Darwin establishes a parallel between human beings and gas molecules. It is well known that statistical mechanics can calculate the average behaviour of gas molecules, even without invoking many of the properties of the individual molecules. In the same way Sir Charles believes it possible "to find the Boyle's law which controls the behaviour of those very complicated molecules, the members of the human race... and to predict something of man's future." (22) However, Professor Darwin seems to forget that there are no single gas molecules which, suddenly, can change the behaviour of millions of other molecules, while there have always been human beings who changed the course of history and forced their fellow citizens to change their behaviour. Even a collectivistic approach to history can hardly deny that the course of events would have been quite different without such personalities as Moses, Buddha, Christ, Mohamet, Luther, Calvin, or Alexander the Great, Caesar, Napoleon, Jefferson, Marx, Lenin, or without Galileo, Newton, Lavoisier, Volta, Ampère, Pasteur, Robert Fulton, George Stephenson, Graham Bell, the Curies, Marconi and Einstein. By outstanding personalities like these,

the average behaviour of human beings has been greatly influenced and modified in directions hardly foreseeable even by "specialists." Thus the analogy between human beings and gas molecules is rather shaky.

There are, of course, certain trends in the evolution of societies which allow us to foresee certain events with some probability, but their exact timing and specific, concrete realization is always determined by the appearance of some unpredictable, outstanding personalities. He who read Georg Gottfried Gervinus and certain writings of Heinrich Heine—especially his *L'Allemagne depuis Luther* (1834), published later as *Zur Geschichte der Religion und Philosophie in Deutschland* (1852), could foresee, a century ago, that some day German racialist nationalism would run wild and cut all links of the German people with Western civilization. It was also foreseeable that this event would involve Germany in a war with the world's civilized nations, which would end in her defeat. And yet, nobody could calculate the exact date of these events, nor foresee the diabolic, technologically implemented cruelty which Hitler's morbid personality was to impart to Germany's racialist uprising against mankind.

The Russian revolution of 1917 was foreseeable for many decades and had been foreseen in some of its features by Dostoevski and others. Unforeseeable and incalculable, however, was the personality of Stalin, whose individual character changed a proletarian mass movement into an authoritarian regime, characterized by despotism and hero worship. The emergence of a given personality at a certain historical moment and his or her specific individual characteristics and influences cannot be computed in advance in the way Leverrier calculated the appearance and characteristics of the planet Neptune. The main reason is that we do not possess all the biological, psychological and sociological data which produce such personalities, nor the laws which connect these causative data with their effects.

Since the third decade of our century any student of modern physics was able to foresee that some day it would be possible to produce atomic bombs, the destructive power of which would surpass anything hitherto achieved in the technique of weapons. I myself foresaw it. When, in January 1945, I had an interview with Einstein, I asked him "whether the disintegration of atoms would not soon be able to release the tremendous atomic energies for warfare." Einstein answered: "Unhappily such a possibility is not entirely in the Utopian domain. When military art is able to utilize nuclear atomic energies, it will not be houses or blocks of houses that will be destroyed in a few seconds—it will be entire cities." Eight months after this conversation and two months after its publication in English (23) Hiroshima and Nagasaki disappeared from the earth within a few seconds.

And yet, none of the scientists who worked on the development of the atomic bomb was able to foresee all the

tremendous political changes and international conflicts this invention was to bring about as soon as it left the laboratory and became an instrument of man's lust for power.

In science and technology man is mainly involved as a *rational* being, and therefore certain results of these disciplines can, to a certain extent, be foreseen, although even in these fields the flash of genius of outstanding personalities, time and again, brings about totally unsuspected innovations. In political history, on the contrary, man is involved with his interests, feelings, desires, passions and here his *irrational* components predominate. And, by definition, the irrational is unpredictable, incalculable. This is, in my opinion, one of the reasons why historical laws do not allow us to predict more than vague generalities. They are mainly devices for the classification and explanation of historical events which have already occurred, followed by some hazardous generalizations referring to a possible future. As explanations of past historical events these laws are based on inferences from effects to previous causes, and since a given effect may have resulted from many different causes, all such inferences offer only some degrees of probability. Historical laws are only statistical laws which always involve a large element of chance. I would not go as far as Professor K. R. Popper, who denies historical laws and the necessity on which they are based. "The future depends on ourselves, and we do not depend on any historical necessity," (24) he says. I am not convinced by this argument. The spontaneity of our individual actions does not exclude the fact that these actions are subject to psychological laws. In the same way I think that the spontaneity of our collective actions would not exclude the possibility that these actions may be subject to historical laws. But just as the knowledge of psychological laws does not allow us to predict the future course of an individual's life, the knowledge of historical laws does not allow us to predict the future course of collective life, i.e. of history—except for some vague generalities.

However, I do accept Professor Popper's argument by which he refutes large scale historical predictions. The course of human history, he says, is strongly influenced by the growth of human knowledge. But "no scientific predictor—whether a human scientist or a calculating machine—can possibly predict, by scientific methods, its own results." (25) Hence, we cannot truly predict the future course of human history. It is also obvious that some historical predictions may bring about or prevent the predicted event. In the latter case they would refute themselves.

Within all these limitations, we may admit the usefulness of the search for historical laws and consider them, in Georg Simmel's sense, as "provisional syntheses of the typical phenomena of history." (26) However, what a historian considers as "typical" depends on his *standard of values*. With this arises the crucial and difficult problem

of values in history. Only a few remarks can be made here on this very important and complex problem, which I am studying more thoroughly in a forthcoming book. (27)

It has been said that the scientist's approach to reality has to be free from evaluations, while the historian selects certain aspects of reality, according to his personal scale of values. Each historian deals with one *selected* aspect of his subject matter. It may be contended that this feature is not peculiar to the study of history, for the exact sciences are also selective. Indeed, in describing its objects each science *selects* one of the aspects characterizing these objects, disregarding all the others. The chemist sees in a piece of marble nothing but a microcrystalline form of calcium carbonate, while to the archeologist this same piece of marble may be the Niobe of Praxiteles.

And yet—in my opinion there still subsists a basic difference between the selective approaches of the sciences on the one hand and of history on the other: the selective process in *science* is *not evaluative*, but purely *methodological*, a mere consequence of the division of labour. Science is and has to be exempt from values. For science the horse is not more valuable than the horsefly. Biology studies them both with the same care. On the contrary, the selective process of the *historian* is definitely *evaluative*. The same historical epoch can be described by a great variety of categories and patterns of interpretation, each of which is expressive of a certain *set of values*. An epoch can, for example, be described as a struggle among human passions (Vico), or between laziness and greed (Kant), or between belief and unbelief—a point of view dear to Goethe and to Carlyle, only that the German poet interpreted the term "belief" in a worldly sense and the English writer in a religious way, as a struggle between the forces of good and evil, of heaven and hell. But the same historical period could, perhaps, also be conceived as a battle between reason and irrationality, as in Voltaire's conception, or between reason and liberty (Fichte); or as an antagonism between individual and society, a perspective in which Wilhelm von Humboldt was interested; or as a struggle between might and right, tyranny and freedom, nationalism and internationalism, between spiritual and worldly powers or between exploiting and exploited

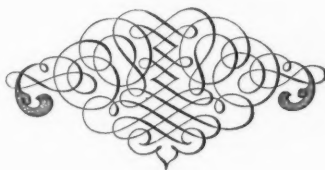
classes, a point of view stressed by dialectical materialism. According to the categories chosen and the selection of appropriate facts, political history can be one of ideas (Hegel), one of civilizations (Voltaire, Spengler, Toynbee, Huizinga), one of great men or heroes (Fichte-Carlyle), one of classes (Marx, Engels, W. Liebknecht), one of ways of thinking (*Denkweisen*) and opinions (Jakob Burckhardt), one of nations (Ranke), one of international relations (Renouvin), one of religions, of technological achievements, of economic principles, etc., etc. Which of these schemes of interpretation an historian chooses depends, to a large extent, on the set of *values* governing his mind.

To be sure, there has been some reaction against this great selective freedom of the historian. The German philosopher Nicolai Hartmann rejected all monistic categorical interpretations of history and suggested their replacement by a pluralistic categorical scheme. Believing in a stratified world, with a corresponding stratified realm of categories, Nicolai Hartmann wrote: "History, like the world, is built of many strata. . . . History is just as much an economical as a spiritual process, it is the organic as well as the cultural life of the nations." (28) There are historians who truly try to achieve such a pluralistic approach, but they do it with a very limited success. The number of data and the variety of aspects offered by the evolution of mankind are too great, and many of the possible historical categories, fit to synthesize the data, are mutually exclusive. Thus, the individual historian *must* make a *selection* among the logically possible and empirically applicable synthetic historical categories, choosing those which, according to his personal conception, allow him to give the most plausible explanation of historical events and enable him to integrate those events which, according to *his evaluation*, are the most *important* ones. These selections are determined by the historian's Ego. "To eliminate the Ego, in order to make history itself speak"—as Ranke and other nineteenth century historians wanted to do—is a logical and psychological impossibility. While—as I showed in another article (29)—the scientist's approach to reality has to be free from evaluations, *history* can only be written by an *evaluating* being.

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ALFRED STERN, Professor of Philosophy and Languages at California Institute of Technology, is a native of Austria and received his Ph. D. at the University of Vienna. He has taught at the University of Paris, the Institute of High Studies of Belgium in Brussels, the National University of Mexico, the French College in Mexico City, the French University in New York and the University of Southern California in Los Angeles. Dr. Stern, who came to Caltech in 1947, is the author of several philosophical books published in five languages: French, German, Spanish, English and Japanese. Among his works are *Die philosophischen Grundlagen von Wahrheit, Wirklichkeit, Wert* (Munich, 1932); *Filosofía de la Política*, Mexico, 1943; *Philosophie du Rire et des Pleurs* (Paris 1949); *Filosofía de los valores* (Mexico, 1944, Buenos Aires, 1960); *Sartre—His Philosophy and Psychoanalysis* (New York, 1953) etc. His article is a condensation of a chapter of his forthcoming book, *Philosophy of History and the Problem of Values*, which will be published within the next few months in three languages: English (Mouton and Co., Publishers, The Hague, Holland); French (*Centre de Documentation Universitaire*, Paris) and Spanish (*Editorial Universitaria de Buenos Aires*). His work has earned him the insignia of a Knight of the Legion of Honor (France) as well as the Academic Palms, with the title Officer of the Academy (France).

HELEN CABOT MILES

## *Self-Realization Through Art Appreciation*

A PILOT EXPERIMENT IN  
THE DYNAMICS OF INTEGRATION  
THROUGH THE ART CLASS

BY WHAT PRACTICAL MEANS can the well-intentioned classroom teacher contribute anything *vital* to the verbalized concept of "integrated education" intended to produce "integrated adults" unless he first becomes dedicated to the task of *self-integration*, integration at a high human level, at the level now frequently referred to in psychological circles as self-actualization, or self-realization?

"What you are," said Emerson, "speaks so loudly that I cannot hear what you say." This, then, is the challenge: to *be* by example, self-realizing—in process; to face up to the necessity of exploring oneself *within* as well as one's world and one's interactions *without*; to hold to an expanding concept geared to an expanding universe—then to follow the gleam of Truth wherever it may lead; thus, finally, to teach, by example, by increasing self (even Self) control, by evocation, and by subtle radiation. This, we submit, must become the credo of those who wish to push the frontiers of learning into the New Age.

To accept this credo holds implications for the present all-too-prevalent emphasis on teaching-techniques; to accept it means to move up to Strategic Position Number One the search for universals, cutting across time and space, for the laws that are higher than human convention, for the truths that are deeper than verbal formulation. For this reason, an approach through the arts, with implicit necessity for transcending the verbal as one searches out the laws underlying harmony, rhythm, and beauty, is uniquely suited to the quest. It is not the only way, no doubt, but it is a good way—perhaps *one* of the direct approaches to knowledge and wisdom that can scarcely be omitted in a completely integrated program. For if "having eyes we see not, and having ears we hear not" then are not learning *how* (not what) to see, and *how* (not what) to hear—even *how* (not what) to feel more basic to a grasp of the meaning of life than we have realized, to judge from curricula of the past?

Now this is no mere theory. Since 1941, in at least one public high school classroom, the theory has undergone testing. The testing ground: chiefly sections in Art Appreciation, but also classes in creative art and English, and sometimes classes at other levels—college students, adults, and younger gifted children. The testing has yielded evidence, evidence that students in all classes—but especially in Art Appreciation—often (more often than coincidence or the law of averages would explain) emerged with marked changes

in attitude, not only toward art but toward life, toward other subjects, other people and themselves. Evidence that at least some of these people had undergone major expansions of consciousness;<sup>1</sup> that they had increased in awareness not only of beauty, the expected province of art, but also of many other subtle relationships—physical, emotional, mental, social, and spiritual.

But are the classroom procedures that were followed such that they can be transmitted? That is now the question. The attempt, however, is far from "impromptu." Rather, it follows after several years of conscious effort to record, to collate data, to test hypotheses and to validate hunches according to the most rigorous application of the scientific method that seemed commensurate with the situation.<sup>2</sup> There were times when one sympathized—even identified—with the well-known centipede who, becoming self-conscious, couldn't think which foot to put down first! Some said the process *couldn't* be documented except by an impartial outside observer. They could scarcely have offered greater challenge! And so, with no apology, I propose to list here the basic assumptions that finally emerged out of nebulousness, together with some of the implications they seem to hold for educators. This will be followed by a brief report on the course content and variety of procedures, set down with full awareness of the virtual impossibility of capturing in words on a printed page the *livingness*, the flow, the subtle interplay of vital experience; but with the hope that a reader who, sensing the problem, scans with intuitive antennae alert, will find in the following pages some thought that can become a part of his own equipment for ever more effective education for life—through art experience and the contemplation of the significance of art in the Scheme of Things.

BASIC ASSUMPTIONS (which I believe the work of an increasing number of psychologists is rapidly removing from the realm of hypothesis, though they may be open to challenge):

(1) That one purpose in the educational process which can be served with great effectiveness by the arts, is to release the potential innate in every human being—a very different thing from transferring facts or opinions, as someone has aptly put it, from one bin into another.

(2) That changes in consciousness must precede lasting changes in behavior.

<sup>1</sup>With effects noticeable to parents, other teachers, and guidance counselors as well as to themselves.

<sup>2</sup>The author would like to acknowledge here the assistance and encouragement of two dynamic psychologists: A. H. Maslow, of Brandeis, a contributor to MAIN CURRENTS, and Robert Assagioli of the Institute of Psychosynthesis, Florence, Italy. Several months of close association and study with Dr. Assagioli served to put the years of struggle, trial and error, and soul-searching into some sort of order. My own findings, empirically tested, were given theoretical framework, *ipso post facto*, by his years of clinical experience with the concepts and techniques of Psychosynthesis—a debt that can scarcely be paid, save by sharing the fruits of the collaboration.

(3) That real learning takes place at unconscious levels.

The teacher, then, must become increasingly conscious of the many ways in which the unconscious works—in himself (difficult as this may be), in his pupils, in their relationship with each other and the environment. This implies psychological study—but more than that, experience leading to self-insights, preferably under guidance. (Opportunities for group work in this line are becoming ever more available.)

(4) That consciousness unfolds in response to three factors: strong inner urge (such as we find in the seed, Bergson's *elan vital*); environment, which can be made a facilitating factor; the removal (by a variety of processes) of obstacles.

The teacher, then, must observe and evaluate constantly in order to determine what combinations provide the maximum facilitation, which throw up the worst blocks. Certain physical conditions are helpful, even necessary, but without consideration of a psycho-spiritual component—of which we have to become increasingly conscious ourselves—they may have relatively slight effect.

(5) That we learn not only through the brain (which is not synonymous with the mind) but also through the physical body, the emotions, and the intuitions; and that none of these levels can be overlooked if growth is to proceed harmoniously, if the processes of integration which are a part of normal growth are to take place.

Classroom procedures must be sufficiently varied to provide for action and interaction at these several levels. We must remember, too, that action is not only physical, that periods of quiet, of "gestation," providing for *inner* action, may be as essential as those of busy experimentation with tools and techniques; that methods of physical, emotional and mental relaxation, of listening with the "inner ear" may be considered as tools in the development of the self.

(6) That the processes by which learning takes place vary to some extent in relation to various psychological types (about which psychology still has much research to do, but it seems underway).

Teachers and psychologists might help each other here, as new knowledge comes to light, new researches yield significant data. In the meantime, careful observation and analysis can evolve workable "rules of thumb." Introversion and extraversion; verbal and non-verbal types; scientific, artistic, or practical modes of thinking and working—these are only a few suggestive possibilities; and in view of the complexity of our structure, there may never be a possibility of precision in categorizing. But it is fruitful to attempt to relate teaching techniques to type, and it can be done with a class of 20, or even 25.

(7) That in addition to lower drives, instincts, motivations, we all possess to some degree (and some to a considerable degree) higher drives and urges (toward beauty and its expression, towards a philosophy of life, a sense of meaning, towards humanitarian and heroic action, etc.);

and the frustration of these can cause just as much trouble as frustration of the lower impulses—which, of course, must not be forgotten.\*

This seems to imply that not only physical beauty, but also the beauty of truth and goodness,—philosophical and moral concepts—need to be considered; and that an awareness of spiritual values must be *expressed* if it is to evoke a “resonance” in often-eager students who, otherwise, are led to believe that these things do not matter.

(8) That while we grope towards effective means of making use of the fact, we can depend also upon the existence of a “deep center” or “Higher Self” which ever tends to coordinate the sub-selves that are usually waging combat with each other.

Out of the basic assumptions grow the following *hypotheses*:

(1) If we accept these assumptions as reasonable, the more seriously and successfully we consider and act upon such implications as have been suggested, the more effectively we will educate in the *educative* sense of releasing innate potential.

(2) Releasing of inner potential is educating for creativity; therefore, as we work along the lines suggested here, we shall be helping to swell the number of free, creative beings.

(3) In view of the fact that the new, positively-oriented psychology is holistic, or synthetic, it is probable that the acceptance of *all* the assumptions, and an application to some extent of *all* the implications will be necessary for any high degree of effectiveness. To work upon one or two premises alone simply will not do.

(4) The key to facilitating creative growth in others is to pursue unceasingly the ways and means of continuing in the expansion of our own consciousness. So long as one keeps thinking and growing and approaches a class in the spirit of mutual search for meanings and relationships and the simple but profound truths that underlie and give coherence to life's complexity, this consciousness of possible coherence will by some catalytic process evoke a resonance and help the powerful unconscious resources of others to work towards coherence.

Commitment to these beliefs, it might be repeated, is not for the faint-hearted. It does, indeed, mean commitment to a lifetime program of search without and search within, a lifetime study of breadth and depth—and depth, in some paradoxical way, means also height. This may sound not only profound (which it is) but also grandiose and presumptuous. Be it set down here for the record that never for a moment must any of us forget that making verbal formulations and living the formulations are, as they say, horses of two different colors. Sufficient success

to encourage further research does not mean that the “success” (such a tricky word) is relatively so very great.

If the reader cares to go on, however, he may begin to feel at home, even to say to himself, “Oh, I know this. I already *do* that.” And very probably he does. Still, we artists who depend so largely upon our intuitions and our non-verbal perceptions are now being forced (beneficently, no doubt) to bring into consciousness what has hitherto floated elusively in unconscious regions. Can this not be construed as a legitimate part of the task of the artist?

And now for the *course content* through which one may test the hypotheses. One part of it revolved around the elements of design: line, area, form (in space), color, texture, light (and dark); for it became ever clearer that there is a direct relationship between levels of awareness and facility in the non-verbal languages (as the “language of line”). Along with the elements go, perforce, the laws and principles of design, as effective guides to the use of the elements. Along with balance, rhythm, unity-with-diversity, and harmony go the relation of form to function, and the use of materials with integrity.

Since the course aimed to awaken an appreciation of the visual arts in the 20th century world, the content then had to include:

(1) an introduction to the many art fields (not only fine arts).

(2) an introduction to at least some of the great art developments and great artists of the past, in order to give an idea of heritage and relationships—Orient as well as Occident.

(3) the search for criteria by which we can presume to call a work of art “great” and by which we can then begin to evaluate from several points of view anything from a painting to a necklace. (Please note the word search. One must avoid dogma, and constantly seek out principles. This is the safeguard if one is to avoid imposing his own personal predilections.)

(4) enough personal experience with materials, tools and techniques to give some first-hand knowledge of factors entering into the creative process, and of the close relationship between inner states of being and outer manifestation.

Since the course aimed to suggest a vital relationship between art and life at any time and place, it had to provide for:

(1) experiences and concepts close to the student's present level. (The levels, as in any elective course in a public school, ran the gamut.)

(2) some idea of the other major approaches to life, i.e., the scientific and the philosophical (use of the rational mind), these two objective; the religious, along with the artistic, subjective. Also an idea of their similarities and contrasts, and the possibility of ultimate convergence, or synthesis, as with a Leonardo, a Schweitzer, or an Einstein.

\*We art educators have already played an important role here with our emphasis on free expression, which is cathartic. But it has often stopped short of *synthesis* because it has dealt largely with the lower unconscious, utilizing the higher part, the superconscious only incidentally or accidentally. See “Art and the Superconscious” in *Art Education* for October, 1960.

(3) some idea of conditioning factors that differentiate, e.g., Medieval and Renaissance man, the Egyptian, the Roman, the Chinese, and so on, together with the quality of underlying humanity that binds us all together. Introduction to the cyclic concept of history (Spengler, Toynbee, Sorokin) is helpful here. Art students who have been allergic to history courses often find that this makes sense—perhaps because it utilizes the principle of rhythm with which they are familiar.

(4) some idea of the existence of subjective and objective aspects of the life of every human, and the relation of alternation of these modes to the aesthetic principle of rhythm. *Experience* with this alternation. (The relationship of this polarity in ourselves to the historical and sociological polarity as pointed out, for instance, by Sorokin, may or may not be spelled out explicitly. Perceptive students discover these connections, given a hint, as well as other evidences of the maxim “in the macrocosm as in the microcosm”; it is better so.)

Thus, the content roamed far beyond the strict confines of art into history, the physical sciences, sociology, psychology, philosophy, and comparative religion. This in an elective group with I.Q.’s running as low as 70. Known as a “hard course” however, it enjoyed a little selectivity on this basis, and it sometimes turned out that the students short on I.Q. were long on intuition and a kind of sensitivity that permitted them to outshine the “brains” in certain types of activity. When principles are stressed more than facts, students branded as slow often grasp with astonishing sureness, and the shallow thinking of the mere memorizer comes into view. Abstract concepts can often be communicated to non-verbal students by means of diagrams and symbols; but one must not *expect* equal grasp. “Here,” commented one of the slow-learners (highly gifted in human relations) “I can hold my head up and really feel like a human being.”

Classroom procedures also ran a wide gamut, two classroom mottoes being “Never a dull minute,” and “If you don’t like what we’re doing today, just be patient until tomorrow.” We read and discussed; looked and discussed; evaluated silently; wrote and discussed; experimented with techniques and media . . . and evaluated. If a sense of “bogging down” seemed to indicate too much emphasis on the verbal, we could lay it all aside and have just plain fun for a bit; but verbal expression based on common experience is almost a *sine qua non* for the building of a sense of *meaning* (for which youth today clamors, if wordlessly) and of relationship, of bringing unconsciousness into the realm of consciousness. This, I know, sounds like rank heresy to those who contend that the artist who becomes too conscious loses his “touch,” and while there is a grain of truth in this, I can only say that the students who went from the course into art schools (and there were many) found their preparation more than adequate, and a help rather than a hindrance in their later art careers.

Sometimes the class worked as individuals, sometimes

in groups; there was often a wide choice of specific procedure open within a prescribed framework.

Assignments might be for an hour, a day, or a month.

The opaque and kodachrome projectors were used frequently, a movie projector occasionally; but bulletin boards—lots of them—*regularly*. They were kept filled with the usual assortment of student work—sometimes selected, sometimes not, with reproductions, items of current interest and so on. But whatever their subject, they were always arranged carefully, with a variety of format; and they were changed at intervals of five to ten days (both important in view of unconscious functioning). Opportunity for extended study of material for painting reproduction is far preferable, especially to certain types of student, to dependence upon the flash exposure of too many slides which, by producing anxiety, can frustrate. Besides, the posted material allowed for comparisons and the making of relationships, and often provided a takeoff point, planned or impromptu, for a class period.\* Three-dimensional material appeared, too. The atmosphere was informal but not *laissez-faire*, to stimulate spontaneity, and the program was kept sufficiently flexible, within self-imposed limitations, to make impromptu discussions possible. These were sometimes more vital than the more structured class periods; and because they caught the teacher unawares, they created healthy situations in which, upon occasion, no one knew the answers and all had to explore together.

Provocative quotations were always in view, often but not always obvious in their relationship to the visual arts, but always related to the greater art of living. Seldom mentioned, they had their effect. One sometimes heard the practice mentioned a year or two later, or glimpsed by chance a notebook with the entire year’s collection neatly entered. Calculated repetition of a few key words and concepts also made an impact. Such simple phrases: “awareness,” or “tender loving care,” or (in memory of Marya Werten) “asking the needle what it wants to do.”

A 12 x 18 portfolio, from one to two inches thick by June, served, apart from three-dimensional projects and group activities, such as stage painting, as major evidence of the content of the course. It contained original work—for even those students with no “talent” were encouraged to try out the process, at least, of visual expression with the assurance that the grade would have nothing to do with its aesthetic excellence, everything to do with grasp of the essence of the assignment, honest effort, and probable improvement with the passage of time. It contained

\*For example, six or seven bulletin boards, each with representative examples of some master of line could be observed from these points of view: (1) predominant quality and direction of line of each, with according psychological and communicative effect, (2) the “feel” of the work in relation to both national differences and personality types—intellectual, emotional, concern for outer form or for inner meaning, etc., (3) the prevalent subject-matter in terms of the cultural milieu. Such a combination as Botticelli, Durer, El Greco, Degas, Daumier, Picasso and Kollwitz, for instance, provides a wealth of fruitful discoveries.

also examples of the various arts and all manner of mounted or otherwise organized material (from paintings to a folder of current advertising), but always annotated to show the precise point it illustrated and/or its relationship to the over-all view.

And of course there were book reports, research papers (which might have been touched off by an art exhibit at the museum or a noteworthy TV program), reports on "awareness," the inevitable quizzes and identification tests which always included pictures not seen before to be identified by sensitivity to clues, the aesthetic evaluations of sculptures or paintings or coffee pots, suddenly unveiled, and the biographies, to be always accompanied by attempts to distill essences in relation to an artist's significant contribution to life-in-general. The formal organization of the portfolio and its final presentation, by contrast with its earlier appearance, provided a helpful gauge to progress; one the student, too, could see clearly. In fact, he sometimes proposed his own grade, and in later years always accompanied it by a written evaluation of no specified length, but of prescribed soul-searching content. These self-evaluations and grades were wonderfully honest and sometimes reported, unasked, the effects of the work on their home life, families, friends, and so on.

The order of events for the year might have appeared less logical than psychological. But a less cursory overview would, I hope, have revealed an inner logic. For the broad

objectives, as suggested above, were clear and specific; and although the means for attaining them were permitted to develop with spontaneity, they were checked frequently against the overall plan. One must avoid falling into the trap of aimless wandering which results from an overdose of spontaneity.

In fact, it may be that the philosophy of teaching I have tried to bring to life here could be summed up in the words *balance*—the balancing of opposites—and *synthesis*. There is the balance and synthesis, for example, of activities—physical, emotional, mental, and intuitional. There is the variety and balance of different approaches to the same theme for the sake of the contrasting psychological types that appear in an average classroom. And finally there is the synthesis of content, meaning, and method—the *what*, the *why* and the *how*; and this is something—happily for progress—that is never finished.

In any case, each one of us must make a synthesis suited to his own personal teaching style; it would be violating an aesthetic principle for one teacher to try to take on the program of another in toto—like a readymade dress. I have reported here what seems to have worked for me. And somewhere in these pages, I sincerely believe, are seed-ideas of potentialities—ideas by which "education through art" may in days to come take on new and ever more vital meaning as education in the greatest art—of living.

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## ROBERT C. NELSON    The Expert and Integrated Knowledge

✎ *A consideration of the scope of the expert, who makes the most contributions to knowledge, to determine his capability to integrate knowledge.*

THE USUAL TECHNIQUE by which knowledge and understanding is being advanced and acquired is by the discovery and reduction to order of myriad facts in a frontier area. Such professional achievement requires the services of an expert in that field of inquiry.

This is natural and efficient. Students then read the books or papers written by the expert and hear his lectures. Colleagues confirm or debate his conclusions.

However, this is insufficient to the task of integrating the vast knowledge compiled by the experts.

Today we can have only a faith that there is a benefit to be derived from integrating knowledge. We have not realized it because:

- (1) No one field of inquiry has a sufficiently broad theoretical structure to embrace all other fields.
- (2) An expert in one field—out of healthy respect for the discipline of professionalism and the struggle for precision in his own field—would not dare offer speculative opinion concerning matters within another field.
- (3) No one man has become expert in all fields, and then attempted to unify the general theoretical structure.
- (4) When a non-expert speculates, he is discounted as a crank.

The expert's most valuable contribution is increasing knowledge. Let us not misuse him by asking that he also integrate the diverse avenues of knowledge.

The usual habit of editors to rely on expert endorsement prior to publishing an article closes the door to speculative writing. No expert will endorse a construction that extends beyond his field. This has effectively blocked the publishing of possible integrative contributions.

### *Special-Purpose Publications*

In the absence of progressive construction, independent groups have formed. These are dedicated to the construction of a new body of knowledge, and the integration of present knowledge. These groups usually have adopted one of two major premises.

The first premise repeats the criterion employed in publishing generally. That is, only that which is authored or endorsed by an expert will be printed. Such a vehicle attracts experts from all fields, certainly. And the subject matter is supposedly directed toward some generalized goal.

The publication becomes filled with beautiful sparkles of intellect, making enjoyable reading which is often instructive.

But, reliance on the expert leads to the same logical impasse as before. An expert lacks the breadth of facts and breadth of logical discipline to integrate knowledge derived from several fields.

The second premise implies recognition of the impasse arising out of limiting publication to the printing of expert opinion. The door is thrown ajar, and anything goes. Some gems can be found in such publications, sandwiched in between riddles, hints and paranoid ramblings. The general low professional level develops an antipathy among the learned, and among possible contributors.

Nowhere is there an effort sufficient to the task—the integration of knowledge among several fields.

### *Common Error*

The one common element working throughout all of the cited avenues of communication is the avoidance of judgment by those responsible for the publication. Judgment is avoided when one decides to publish only expert opinion, or that which is endorsed by an expert. Judgment is avoided when one decides to publish everything submitted. We cannot integrate knowledge if we refuse to exercise judgment, and that judgment must operate across fields of inquiry.

### *Who Can Teach?*

The mind that has the capability of contributing toward an integrated knowledge must be capable of logically-disciplined thought in more than one avenue of knowledge, the more the better.

The limitations of specialized learning prevent the author of such a contribution from standing with any expert in the expert's own field.

One who may possess a broad knowledge touching on many fields probably will not have knowledge in great depth in any one field. Therefore the product from such a mind may not penetrate much beyond the most elementary concepts of each field. The result may appear crude to the expert. Such an author will be considered shallow, and this increases the likelihood of dismissal by the expert. Such an author, at best, may establish only a surface union

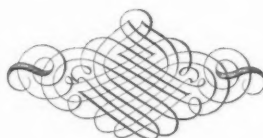
with each of several fields. This limitation must be recognized when evaluating possible contributions to an integrated structure.

The editor concerned with this problem faces the following question: How can I retain the safeguards of expert counsel and provide an avenue for exploratory opinion?

One alternative is provided if an editor rephrases his question when he mails a doubtful paper for checking by an expert. He could ask, "Does this paper offend or contradict the knowledge of your profession?" If not, it should deserve consideration.

Papers containing obvious error would be caught, thus insuring the integrity of the publication. The expert is "off the hook" as he is not asked to endorse an opinion, but merely asked if it contradicts known facts. The final judgment regarding publishing remains with the editor.

Nothing is changed regarding the usual paper published as a contribution to knowledge. Only when an editor receives a paper which attempts an advance in theory, or an integration of present, diverse theory, need he employ the reverse query. He should not seek endorsement where endorsement is impossible. Endorsement can come only after exposure to the challenge of many minds. It is the function of publishing to provide this exposure.



## Dag Hammarskjöld

*The breadth and depth of mind and heart which Dag Hammarskjöld offered to the world during his service as Secretary General of the United Nations were never more notable than when under attack, as during the last days of his life. His resources of spirit were his incontestable gift to our age. The best evidence of this, and the finest testimony to his natural quality, are to be found in his own words, in a statement made April 24, 1957, on the occasion of the re-opening of the Meditation Room at United Nations Headquarters.*

WE ALL HAVE WITHIN US a center of stillness surrounded by silence.

This house, dedicated to work and debate in the service of peace, should have one room dedicated to silence in the outward sense and stillness in the inner sense.

It has been the aim to create in this small room a place where the doors may be open to the infinite lands of thought and prayer.

People of many faiths will meet here, and for that reason none of the symbols to which we are accustomed in our meditation could be used.

However, there are simple things which speak to us all with the same language. We have sought for such things and we believe that we have found them in the shaft of light striking the shimmering surface of solid rock.

So, in the middle of the room we see a symbol of how, daily, the light of the skies gives life to the earth on which we stand, a symbol to many of us of how the light of the spirit gives life to matter.

But the stone in the middle of the room has more to tell us. We may see it as an altar, empty not because there is no God, not because it is an altar to an unknown god, but because it is dedicated to the God whom man worships under many names and in many forms.

The stone in the middle of the room reminds us also of the firm and permanent in a world of movement and change. The block of iron ore has the weight and solidity of the everlasting. It is a reminder of that cornerstone of endurance and faith on which all human endeavour must be based.

The material of the stone leads our thoughts to the necessity for choice between destruction and construction, between war and peace. Of iron man has forged his swords, of iron he has also made his ploughshares. Of iron he has constructed tanks, but of iron he has likewise built homes for man. The block of iron ore is part of the wealth we have inherited on this earth of ours. How are we to use it?

The shaft of light strikes the stone in a room of utter simplicity. There are no other symbols, there is nothing to distract our attention or to break in on the stillness within ourselves. When our eyes travel from these symbols to the front wall, they meet a simple pattern opening up the room to the harmony, freedom and balance of space.

There is an ancient saying that the sense of a vessel is not in its shell but in the void. So it is with this room. It is for those who come here to fill the void with what they find in their center of stillness.

## SOURCE READINGS: Integrative Materials and Methods

### ☞ *An Evolving Universe*

"COSMOLOGY IS THE STUDY OF THE UNIVERSE ON the largest possible scale. In the past three months, cosmological pronouncements have been made which may have the most far-reaching consequences for science in general." Thus begins an article entitled: "An Evolutionary Universe?" by William Davidson, and appearing in *The Listener* (London) for July 6, 1961. Davidson continues: "I am speaking of the results of two entirely different programmes of astronomical research. One dealt with counts of radio sources in the universe, and has attracted wide attention; the other has to do with optical observations of very faint galaxies and has slipped by almost unnoticed. In both cases the conclusion is that the universe as a whole does not look the same at all times, but is in fact in a process of large-scale evolution. This news appears to vindicate one of the two contending theories of the universe, the evolutionary theory, and to eliminate the other, the steady-state theory."

(Interested readers are directed to two additional pertinent references: In *Nature*, (#4779) Professor Martin Ryle, Director of the Mullard Radio Astronomy Observatory, Cavendish Laboratory, Cambridge, England, describes the performance of the "density test" referred to below. In *The Advancement of Science*, (Journal of the British A. A. S., for January 1961) read "The Structure of the Universe," by Prof. H. Bondi, F.R.S., who, with Thomas Gold, first proposed the "steady-state" theory of the universe, in 1948. This appeared in modified form in 1949 as the version sponsored by Hoyle.)

Present cosmological theories are based on two observational features of the universe. The first observation is that the universe is made up of galaxies of stars similar to our own galaxy, the Milky Way, and that these galaxies are distributed more or less evenly, in all directions. Since we have no reason for believing that our position is in any way special, or privileged, cosmologists assume that as the universe appears to us, so it would appear from any other galaxy, anywhere in the universe. This assumption, which is often called the Cosmological Principle, implies that the universe is uniform in space, though it need not be uniform or unchanging in time.

The second basic observation is that these galaxies are all moving away from us, and that the velocity of this movement is increasing in time. Hence the most distant galaxies seem to be receding at the greatest velocities. Again we assume that this effect would be observable from any other galaxy. If we add to these two basic postulates—

the uniformity and the expansion of space—the equations of general relativity, we have the basis for an *evolutionary theory of the universe*. This theory assumes that, once it is created, the matter-energy of the universe cannot be destroyed; it can only be converted from one form or aspect to the other. On the basis of the uniform expansion of the universe, it also assumes that there was a time in the past when the universe was in a state of extremely high density and temperature, and that this time was less than twenty billion years ago. At this time occurred the "Big Bang" when the universe exploded into the expansion we now observe. The theory further predicts that the rate of expansion must now be slowing down, as the galaxies tend to fall back under the influence of gravitation.

"There are two possible versions of an evolutionary universe," says Davidson. "One is that the expansion will ultimately cease, and be followed by a contraction, to be followed in turn by an expansion, and so on indefinitely like a concertina. The other version is that the present expansion will go on with ever decreasing momentum until the galaxies are infinitely dispersed. To decide between these two possibilities we must measure the rate at which the expansion of the galaxies is slowing down.

"So much for the evolutionary theory. The steady-state cosmologists, on the other hand, believe that it is scientifically simpler to assume that the universe, besides being uniform in space, is also unchanging in time. . . . [and that] we should assume that conditions have always been the same, at all times. This assumption has been called the Perfect Cosmological Principle, and it implies that the average density of galaxies in the universe must remain constant. But the universe is also expanding, and so a steady-state cosmologist has to alter the laws of physics in a way Einstein never thought of, to allow new matter to be created steadily in the vast spaces between receding galaxies."

Let it be here noted that the rate of continual creation required by the steady-state theory is very low, by terrestrial standards. According to Bondi, it amounts to 1 atom of hydrogen in each 100,000 cu. ft. of space every 30,000 years or so! Should it occur, however, it would create sufficient pressure to overcome the deceleration of the galaxies due to gravity, and under these conditions the mutual recession of any two galaxies should be speeding up.

Davidson states: "There are two experimental tests which can distinguish between the evolutionary and the steady-state theories. According to the evolutionary theory the distant portions of the universe must appear to be more crowded with galaxies than our own neighborhood, since we see any part of space as it was when the emitted

light left that part of space. On the other hand, the steady-state theory assumes that the density is always the same.

"The second test concerns the relative acceleration of the galaxies. In the evolutionary theory, the expansion is slowing down as the distance between galaxies increases; in the steady-state it is speeding up. Measurements of the velocities of galaxies at a great distance could decide between the theories.

"These two tests—the density test and the acceleration test—are precisely the ones tackled in the recent research programmes. The density test has been performed on radio sources by Professor Martin Ryle and his colleagues at the Mullard Observatory at Cambridge. These radio sources are much less common than galaxies, but they are so powerful that they can be detected by very sensitive radio telescopes out to immense distances in the universe, far greater than the range of observation of optical telescopes. It is precisely at these great distances that the increase in density predicted by the evolutionary theory begins to show up. Ryle finds that the weaker radio sources—that is, presumably, the more distant sources—are at least three times as numerous as the brighter nearer sources. We have here evidence either that the universe is evolving or that we are in an unexpected 'hole' of low density.

"The acceleration test has been carried out by Dr. W. A. Baum in America at the Mount Palomar Observatory. He has measured the velocity and distance of very faint galaxies and he finds, after allowing for his estimated errors, that the expansion is definitely slowing down, and slowing down in a way which fits with the 'concertina' model of the universe.

"These two sets of observations are severe blows against the steady-state theory, and at the moment it seems unlikely that the theory, as it is usually understood, will survive. But it would be premature to write off this theory immediately. The observations and arguments used in both tests are being closely examined for errors; errors that Ryle and Baum have thought of and, possibly, errors that they have not considered."

Despite the most painstaking care and precision in the making of such tests as those just described, the possibility of error is always present and must be kept in mind—errors of interpretation as well as those of observation. For instance, very few radio sources have been identified with visible objects, in the farthest ranges. Should Prof. Ryle have chosen the wrong value for the average power of radio sources, his distance calculations would be in error, since the value chosen fixes the distance scale. However, from purely radio observations, Ryle has been able to put a lower limit to the average power of the sources, and he is confident that the remaining uncertainty could not affect the character of his results.

One interpretation of Baum's results suggests that the present phase of expansion of the universe has been going on for less than ten billion years, whereas the age of the oldest stars of our galaxy has been calculated (by Hoyle

and Fowler) to be over fifteen billion years. This apparent contradiction might be resolved if it turns out that the rate of expansion has been overestimated, as it has been in the past.

The steady-state model of the universe is not yet dead—but it is rapidly losing support. The universe-model which has gained greatest support from the crucial tests herein discussed is that of the *pulsating, evolving universe*.

—Alan Mannion



## *Toward a Science of the Individual*

THE CONCERN OF MUCH OF THE BEST in contemporary psychology and psychotherapy is for the individual as a human being who participates actively and creatively in the world, rather than as a psycho-physical mechanism whose behavior is determined by external conditions and whose motivations are based primarily upon biological needs. As a result of current research on the brain, physiology itself has turned its attention to the processes which make sustained performance possible, and investigations of the role of the cortex are demonstrating the fallacy of theories which categorize the higher mental functions as subordinate or derivative. (See Ira Samuels, "Reticular mechanisms and behavior," *Psychol. Bulletin*, 56:1-25, 1959.) Man is thus again being recognized as a thinking, feeling, self-determining person.

That this can be considered a truly contemporary achievement shows something of what psychology has been through in its short history. As G. W. H. Leytham points out in his article, "Psychology and the Individual," in *Nature* (Vol. 189, No. 4763, February 11, 1961), ever since the days of John Stuart Mill psychology has been beset with conflicts between two disparate points of view. Mill himself differentiated between ethology, the science of character, and psychology, the science of mind. Those who held to the former believed that character or human values should be the central study, and that in focussing on the individual psychology would serve as a basis for the cultural and social sciences. On the other side, it was felt that the business of psychology was to ascertain the general laws of mind, and that therefore its method should be experimental and scientific, confining itself to explanation, analysis and the development of techniques. This distinction between the search for general laws and a concern for the uniqueness of the individual has separated the experimentalist from the clinician, the psychologist from the psychiatrist, and, in a wider sense, the pure or theoretical scientist from the applied or practical scientist.

Leytham quotes Rodger's presidential address to the British Psychological Society in 1958, in making the point that there are encouraging indications that psychology is at last turning away from the old theses and antitheses toward a new synthesis. In this new phase, as exhibited in

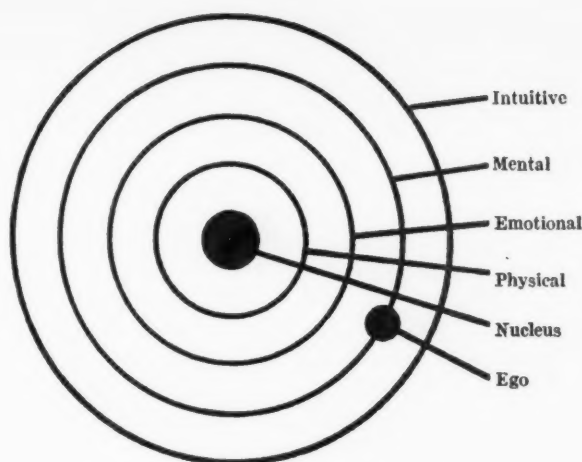
papers read at the 1960 Conference of the British Psychological Society, there is increasing application of scientific techniques, such as developed in game and information theory, to problems involving perception and behavior, while recognizing the limitations of such an approach. Leytham is hopeful that this fresh impetus in the long-neglected study of human thinking, together with other developments, will hasten the reconciliation of the two different psychological points of view, and exhibit their complementary nature. He quotes Hearnshaw's address to the British Psychological Society in 1956, which spoke of the tension between the demands of scientific method and the appreciation of the richness of human individuality. Hearnshaw said that he could "see only one way of narrowing the gap between the scientific and humanistic psychologies, and that is through a gradual encroachment of scientific techniques upon territory already roughly mapped by humanistic insight. This means in effect a constant search for concepts which, while capable of scientific definition and employment, nevertheless possess humanistic implications in the sense that they throw light upon peculiar, or, as they are sometimes termed, the higher attributes of man."

The work of Allport, Maslow, and the many pioneers in the field of existential psychology and psychiatry, is rapidly opening up an area of inquiry devoted to psychological health and the potential for greatness in man, and, as Leytham remarks, is "evidence of the increasing rapprochement between the humanized behaviorism of the United States and the Continental stress on man-in-action and phenomenology." Indication of the practicality of applying laboratory methods to real-life problems is given in a study by Harlow on "The Nature of Love," in which it is shown that experimental investigation is useful and valid if the proper allowances are made in referring back to the everyday world. As Einstein said, "The object of all science, whether natural science or psychology, is to coordinate our experiences and to bring them into a logical system." Experiences of psychologists vary widely and so one would expect their logical systems to vary also. But again, these theories apply to different situations; they may be complementary rather than alternative.

Leytham makes the important point that the big need in psychology today is for a conceptual framework in which all the experiences and theories can be related to each other. Such a theory of the whole would not only bring together and relate the various aspects of behavior, but would also take account of the fact that development and growth are psychological as well as biological. As a first step in the direction of a unified theory, the author suggests that the individual should be established as the unit of psychology, and he introduces as an integrating framework a model which he has been developing for the past few years.

This model is shown diagrammatically below. Leytham's description is as follows:

"The social, physical and biological environments will



A model of the Individual, showing the four levels of awareness, the fixed nucleus, and the mobile ego

impinge on the individual at the nucleus, which is both a transformer and a relay station: it transforms incoming stimuli and relays them to the ego and also receives outgoing stimuli from the ego and transforms them into action or responses. Psychologists studying the relationship between the behavior of the psychological individual and the activities of the biological organism, or with the machine-like aspects of behavior, would be concerned mainly with the properties and functions of the nucleus. Those interested in problems of sensation would find the physical level of awareness and its relation to the nucleus relevant to their work. Feeling and emotion would, of course, have special reference to the emotional level of awareness, while reasoning and other activities involving the use of language would come within the sphere of the mental level of awareness. Certain aspects of creative thinking and the higher forms of religious experience would be referred to the intuitive level of awareness.

"The ego can operate on any level of awareness and represents immediate experience of the perceptual world, from which the social, physical and biological worlds are inferred. Problems of perception would thus relate to the dynamics of the ego and the particular level of awareness on which it was functioning. Learning would also apply to all levels, and it seems likely that psychological time (the 'specious present') would correspond with increasing spans of physical time at successive levels of awareness away from the nucleus."

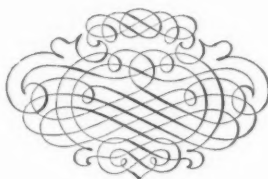
The successive levels of awareness are also related to the successive stages in psychological development, and these may be understood with reference to the range and preferred focus of ego functioning. The model thus accords well with Maslow's theory of motivation, which states that "the basic human needs are organized into a hierarchy of

relative prepotency." Maslow's hierarchy of needs relates to the model thus: physiological needs (nucleus); safety needs (physical level of awareness); belongingness and love needs (emotional level of awareness); the esteem needs (mental level of awareness); and the need for self-actualization (intuitive level of awareness). Jung's four functions—sensation, feeling, thinking and intuition—also bear a close resemblance to the four levels of awareness.

Leytham suggests that a model of this kind would help psychologists ask the right questions and relate facts, both old and new, into a dynamic system. In answer to the question, how would such a model help to bridge the gap between the pure and applied fields of psychology, the author

answers that the structure and dynamics of the abstract, theoretical individual would be the concern of the pure scientists, while the application of the generalities found to the life and experiences of the particular individual in his particular situation would constitute the aims of the applied psychologists. Knowledge obtained in the latter field would in turn be fed back to help experimentalists modify their model and formulate problems for research. The two aspects of psychology would thus collaborate in mutually helpful procedures. The result might be an outstanding achievement in the integration of the many facets of psychology.

—E. B. Sellon



## News and Views

AFTER HALF A CENTURY only a few may remember that strange book, *The New Word*, in which Allen Upward studied the real significance of the Nobel Prize stipulations. It was published (by Mitchell Kennerly) before its proper time, and only now begins fully to discharge its meaning.

Alfred Bernard Nobel (born October 21, 1833, died December 20, 1896) grew wealthy primarily from the manufacture of explosives. His last testament endowed rich prizes for creative talent in literature, science and peace. He was a contemporary and prototype of Andrew Carnegie (born November 25, 1837, died August 11, 1909). To Carnegie the encouragement of reading among the masses seemed a suitable philanthropy. Many a man now alive can recall how the typically dark, ugly, hole-and-corner public library bloomed suddenly into a place of light and beauty, both physically and psychically. Carnegie also endowed a great corporation, mainly for education, and funded a separate foundation for peace, both extant in New York.

After these idealistic ventures for peace came decades of a new kind of war. Chivalry and Geneva Conventions were made obsolete by shells, guns and air-borne bombs. The elder John D. Rockefeller (born July 20, 1863), the Mellon, Dupont and other families and fortunes flourished and grew through a period of technological ascendancy and ethical decline. Science, medicine, letters, sociology and education seemed to offer more to the humanitarian than direct efforts for peace. (One can hardly regard Mr. Ford's Peace Ship as anything but a personal gesture.) A large company of American millionaires, billionaires and (in terms of corporate control) multi-billionaires has emerged during the first half of the twentieth century as the top of a

pyramid of financial power. Today in America this financial concentrate, plus the civil government, the professions and labor (all ostensibly democratic) and the military establishment (like that of money, essentially undemocratic), form the main aggregates of power.

Among those at the top of the financial pyramid, some who are sensitive and cultivated, endowed with conscience and humanity, must surely look backward at the Nobel and Carnegie peace endowments with a kind of wry nostalgia. For they live in a time when most of the elements upon which the Roman-European type of politico-economic society was founded have disappeared. With a rush slavery, illiteracy, imperialism, colonialism and war have ceased to be available as instruments of public policy. Both finance capitalism and a brief republicanism were supported on those foundations in Rome. We now face an immediate future whose paramount features will be universal literacy, political and social freedom, worldwide technological competence, and mutual dependence among nations.

Everything needed for economic freedom, leisure and culture is at hand—everything except, perhaps, the will to spend real money on such things. As reported in the *Herald Tribune* on October 24th, Dr. Lee A. DuBridge, President of the California Institute of Technology, speaking at the inauguration of the president of the New School for Social Research, listed a number of technological advances whose worldwide application to social problems is perfectly feasible from a scientific point of view. Among these are swift and comfortable transportation of men and materials to any point on the globe—and without traffic jams; pure, fresh air for our cities,

free of man-made pollutions; houses and even whole cities that are weatherproof, heatproof, coldproof and stormproof; instantaneous communication between any two points on earth; uranium energy to heat and light and provide power for houses and factories in every country; an abundance of fresh water, distilled from the sea, to irrigate all the world's arid regions and so release millions from the threat of starvation. The only flaw in this portrait of abundance is, in the words of Dr. DuBridge, that we "do not know how to bring adequate resources of money, labor and materials to bear on the problems."

Whatever free finance and its close allies and agents—most conspicuously, the press—will do, it will be decisive. For, as individuals, men and women of wealth are both free and powerful. Professional people are equally free, but unequipped with comparable material power; they must unite to wield influence, whereupon individual freedom is surrendered. Therefore capitalists are uniquely situated in their possession of individual power. But their freedom to use it depends upon the framework of constitutional government that guarantees this freedom will continue so long as that government shall last. Therefore it is these few free men who will have to act to save capitalism (and constitutionalism) if it is to be demonstrated that capitalism and freedom are indeed compatible.

Thus the time is ripe for those who command the power of wealth to declare their allegiance to one or another course of action. The record shows that there are those who have the education, insight, simplicity of purpose, humanity, intellectual honesty and courage to respond positively to what is transpiring in the world, and to take concerted action before the freedom to act has passed away from them. There are others, too restricted by circumstance, too bound by habit and heritage, too adjusted to a status situation, to be able to gauge the times without partisan emotion. The first might be called the Doers, the second the Donters, and unless the former outweigh and outpace the latter very considerably, the chances for survival of our democratic republic are fairly slim.

It is in this context that *The New Word* comes to mind. The author makes an inquiry into the difference between the little words which have both breadth and depth, and the learned words, which disguise the truth. Sir Oliver Lodge somewhere remarked the genius of the north Europeans for indigenous and borrowed words of one syllable, which carry with them the whole depth-charge of feeling, meaning and volition. Words like *lore*, *life* and *love* are rich and rare, for beyond their ordinary significance lies a whole world of meaning and implication. Peace (the Latin *pax*, via the old French *pais*) is another such word, implying inward grace, the positive and spiritual polar opposite to the negative absence of strife.

Words derived from civilizations that are cut off from nature and become overmaterialized seem to provide exactness, but in fact they tend to be juiceless, and only yield the illusion of meaning. Sesquipedalianism is not, of course,

restricted to single words. In England the understatement still survives, even in government circles, amid the long, platitudinous ambivalents put out by politicians. Lord Home has the gift of plain speaking, and uses words that seem to be charged with artless feeling. Sir Winston Churchill, more artful but no less charged with feeling, used some little words with biting force. Blood, sweat and tears are, unfortunately, universals in man's experience; but it is precisely from battle, murder and sudden death that mankind must and shall be delivered, if it is to survive at all.

In practical context, what we need is some revitalization of those meaningful small words of life and of love that can renew our civil, moral and intellectual courage, and uphold our knowledge-based conviction that there is meaning under the misery and meanness of mankind. Our concern here is not with politicians, but it is worth remarking that Adlai Stevenson has not spoken his simple truths in vain. To be sure, the Congress and the political party men could hardly be expected to co-exist peacefully with anyone capable of suggesting that the eggheads of the world should unite. Even worse, there was talk about yokes, and that is no way to win elections in a social scene like ours. Nevertheless there is quite a constellation of eggheads in the Executive Branch just now. The men of sensitivity and feeling (a Lincoln, a Socrates) with the gift of simple speech, the blessing of a sense of humor and the balance of a sense of proportion have a power which no tyranny or mob can defeat. Their words at the moment of utterance may be little noted, but they are long remembered.

The contrast which Upward examines is between words and language structures in any tongue which get their power from their direct expression of demonstrable truth, and those polysyllabic circumlocutions (*there is one*) which obscure and smother the living truth. Take, for example, peace; take, for example, non-aggression. Non-aggression implies that it is possible to achieve the positive joys of peace by doing nothing. The nations are trying to win a state of non-aggression by calling each other names; words are weapons used to win skirmishes and gain objectives. The United Nations is verbally drowned in deviousness, saturated in propaganda, and buried under avalanches of avoidance, postponement and calumny. No delegate can ever say simply what he means, without hedging, as that might give an all-too-revealing glimpse of truth.

For straightforward, honest, simple words—the native idiom—can give significant clues to the nature of a people. German, for example, can be "rein, und schön und holt." This is the real, the non-organized German. It can also be the very model of labored churning and furious feeling. There is something revealing as well as something funny in the story of the man who enters a brasserie and finds the crowd hanging in rapt silence upon the harangue of an impassioned speaker. "What is he saying?" the newcomer whispers to a member of the breathless audience. "I don't know," comes the reply, "We're waiting for the verb."

At the bottom of today's lingual confusion, oddly enough, is the one discipline which is supposed to be clear and forthright in its expression. It is science most of all that imposes upon us billions of words about secondary matters, and evades telling us the significance of the profound truths it has opened up. In its own idiomatic mathematical discourse it can speak briefly and to the point. (There is a celebrated phrase which in four short words precipitated the present crisis:  $E$  equals  $MC^2$ .) Physics can speak in this way because it is at home with absolutes, infinity, the reality of the non-material, and the causal role of the continuum. Chemists agree to all this, and add details which make quite certain our knowledge that the very basis of the universe is musical, and that physical nature strives to embody its ideals. Even in the world of politics we hear, now and then, from men who are either by nature or by experience, or by both, so at one with the underlying stratum where truth is beauty that they speak straight out about the good. Einstein himself had this strength of innocence. There is, also, some interest to be found in the reflection that men like Linus Pauling, Robert Oppenheimer, E. U. Condon and other scientists have a certain power because their thinking is founded upon demonstrable, cosmological truth. Whether they use this power for good is, in part, dependent upon their courage. But their ability to stand up and be counted, if they will, derives from the fact that they have been in touch with reality, even if it be only in terms of matter and energy. Even a little experience of truth makes one distasteful of sham. Others in all walks of life have interior access to the same reality, but in personal terms; it is because science makes reality publicly demonstrable that it confers authority and power.

It is proper and natural and reasonable to look to the day when the sciences of life and of man afford the same certainty to every schoolchild as the sciences of matter and energy today give their savants. For, as we said before, life and love are two of the great small words which need to have restored to them, through the sophistications of science, the deep meaning they once had, and which our emphasis upon material things has stolen from them. Foundations for such meanings have been laid. Physics itself has gained, if not fully shared, some knowledge about the continuum, and has documented the truth (long taught in religion) of the harmonic, non-material reality. The continuum is known to make and hold all things in its sovereignty. But what of creatures and of men?

Love and life, unsupported by cosmological theory, took a young woman by the name of Elizabeth Elliot and her little daughter and a friend to live with a group of Aucas in Ecuador who had killed the other members of their families. No recent book is more moving than her report in *The Savage: My Kinsman* (Harpers, 1961). Moral courage and religious conviction thus sustain the heroic individual, but they are not, unfortunately, able to build an ethical society when a culture is beset with complex problems of the kind in which the individual figures very little.

For this we need the knowledge that the physicist has added to his faith in nature's order and constancy—and thereby won for man a way of living that is, in one area at least, consonant with truth. In the domain of matter and energy we know more or less where we are, and we abide by the rules for our own good. The same kind of knowledge must be sought on other levels, so that our faith in the laws of love and life can be re-founded on rational, teachable reality. Today, the clergy and the scientists are for the most part living in two different worlds, yet both are captive to the cause of violence, arms build-up, war. Is this not because the *lore* of life has been put aside—and with it our heritage of knowledge of the good acquired through millennia of struggle—while all our resources of energy, wealth and power have been directed towards the material world?

At the head of the little list of words we need to know better stands *peace*. Peace indeed passeth (but is fully in accord with) understanding, yet it can only be liberated in the world when truth is known and used in the service of freedom. Truth *can* be known, and we have in America the skills and the educational facilities to make it available to all. But for this tremendous task we need all the resources we can marshal—resources of power, of wealth, of knowledge, of faith and feeling, of kindness and concern, of generous and unselfish giving.

—F. L. Kunz



It is with deep regret that we report to our readers the recent death of Helen Cabot Miles, long an associate and friend of the Foundation for Integrative Education. Miss Miles was one of those rarities in education to whom teaching is an art as well as a necessity. Her courses in Art Appreciation in Newton High School grew in scope and vitality over a period of nineteen years. She was outstanding as a person and as a teacher, and she has left a deep imprint on hundreds of responsive students whose interests were always paramount with her. We are happy that her philosophy and method of teaching can be shared with our readers through the article completed just before her death.



Mr. Nelson ("The Expert and Integrated Knowledge") is himself Associate Editor of a technical journal, *ICS Instruments and Control Systems*, and therefore speaks out of the background of his own experience. It might be mentioned here that it is the purpose of the Foundation for Integrative Education—and the editorial directive of MAIN CURRENTS—to solve the problem to which he calls our attention by getting wide understanding and agreement with respect to the knowing process itself (i.e., epistemology). The attainment of such a consensus would provide the valid background against which even the startling innovation could be seen in perspective, and its relationship to existing theory properly assessed.

## Reviews

*The Heart of the Hunter*, Laurens van der Post, William Morrow & Company, 1961, \$4.50.

THOSE WHO HAVE READ *The Lost World of the Kalahari* will need no introduction to the land of the Bushman. As Laurens van der Post indicates, *The Heart of the Hunter* begins where the first book left off and penetrates deeper into the desert. He carries us from the Sip-wells far into the "Great Thirstland" just before the rains come, when the "feeling of being backed up on a mad moment of the seasons takes hold—the red of an apocalyptic sunset when the desert dust could mount and flicker to a column of Old Testament fire." Here is the "World Lost" but found by Laurens van der Post, who with Hagar (Genesis 16:13) saw his God and lived after his vision. Here the reader has the opportunity to experience God in every phase of nature (to quote) "When nature becomes an affair of personalities, until there is nothing of the abstract left in one's mind, sun, moon, stars, wind, lightning and rain all become great magnetic beings and one's relationship with them intensely personal." Here the inner and outer experience meet.

Laurens van der Post modestly calls his interpretation of this experience of the mind and spirit of the Bushman "a kind of improvised little rope bridge over the deep abyss between the modern man and the first person of Africa." It is my conviction that van der Post has drawn the blueprints for the strong suspension bridge yet to be built between man and his own divided self as well as man with his brother no matter where he may live. The skill and profundity from which he draws the design and specifications are so subtly and simply expressed that the full magnitude of his conception comes only on reflection.

Then a sense of gratitude comes that there is a modern man who can connect us with a still living natural man, and through natural man to Natural Spirit. We can take him into our hearts (if we have the heart of the hunter), weaving those strands with our own individual myth. The hope of renewal of the Spirit in ourselves and all mankind springs up anew.

First, Laurens van der Post gives us a first-hand experience of the living, loving, laughing and suffering Bushman of today. He lacks even the protection afforded the wild animals of Africa. He struggles on in small family groups as he always has. He has lost out with all other men, black or white. But he brings to us his human experience of "hunting" for the meaning of life. From the "Saga of Mantis" evolve all the essential cycles of the Spirit through birth, living, suffering, redemption, reconciliation and spiritual transformation.

In the end, this is the universal tale of the Hunter, the Seeker, the Wanderer who goes through his own desert, his own hell, and comes out united with his own Natural

Spirit. In the telling, van der Post gives many guideposts—how to get the living water from the desert sand, how to follow the flaming lightning, the sound of the stars, above all how to accept the rejected self, that part of man closest to universal spirit.

Most profound psychological truths are so brought out in beautiful non-psychological language that they become flashes of lightning in the desert, illumining the dark spaces of our own individual psyches with new revelation.

Here walks the little Bushman, childlike but endowed with all the dignity of his adult human awareness, filled with Natural Spirit because he is one with it. His oneness with the stars gives the book its name. The stars are the mightiest hunters. They can give to the growing child the heart of a hunter. The Bushmen know the magic of the innocent, the pure in heart in the little steenbeck who is seldom killed. Perhaps the few existing Bushmen have been protected by this same magic to give their message of regeneration to all those human beings who have been so cut off from their own "honor" and who have, as Laurens van der Post says, "been deprived of the urge to love or filled with the lust to kill."

Part Two concerns that "World Between" in Africa where we witness the fate not only of the Bushman but all those caught in the "Black-out," tensions, conflicts so widespread, so deep, that it has become a nether-land, "a sunset hour of time." One is forced to see that this is not only Africa but the whole world. Laurens van der Post is graphic, specific and forthright in his treatment of this situation, and as always he drives his points through to their psychological source, offering general and specific remedies.

The most touching personality is Dabe, his "tame Bushman" interpreter, who cannot go back to his people nor to his European protectors without nembatal. "Looking in Dabe's eyes, I saw a soul in hell; for hell is the spirit prevented from going on—it is time arrested in the nothingness between two states of being." But Dabe's sense of humor, his power of mimicry, save him and bind him to van der Post.

And so we enter Part Three, "The World Regained," where unfolding before us is the "Saga of Mantis," and we walk with Laurens van der Post where he "felt as if he had been allowed to witness the coming of the word in the darkness before time," where the dream dreams him, leading him to insights of such depth and compassion that Natural Spirit comes alive, friendly, compassionate to us in our search for unity and wholeness.

The author sets the stage. "There was meaning in everything for the first people, from the birth of a calf to the death of a man and beyond; and enclosing all, there was an overwhelming sense that every living thing shared in

the process of creation." From the Bushman's story of Dxui—the first Spirit of creation, and Kaggen—the praying mantis, the whole process of spiritual evolution unrolls before us.

In the Bushman's myth of creation we discover the intimacy of nature's interrelationships. Laurens van der Post makes clear why the Bushman's intimacy with nature differs from that of other primitive Africans. One of the most important reasons is that the Bushman never experienced the power and tyranny of numbers, nor the sacrifice of the individual for the group. Perhaps this is why he can speak meaningfully to the individual who today is so caught in the collective. The Bushman's security lies in his feeling of being known by all of nature of which he is a part. This sense of being known extends to the universe, through the stars. There is no fear as modern man has come to know it. For the Bushman there is no inequality as we know it.

The myth reaches a climax in the author's interpretation of the Bushman's "traffic of meaning with the stars like that traffic of angels which Jacob saw in a dream during his own desert flight."

Through his long individual and profound "engagement" in the vital continuity of creation, the Bushman has acquired extra-sensory perception of a unique kind. As a Bushman said, "The Bushman's letters are in their bodies. The letters speak, they move, they make the Bushman's body move. A man is silent when he feels his body tapping inside." We receive van der Post's extra-sensory perceptions assayed by his fine discriminating mind and his compassionate heart.

One cannot close a review of this book without emphasizing the significance of the moon which, to Laurens van der Post as to the Bushman, is the paramount symbol of renewal. She comes out after the passing of the day, bringing reflected "Light to All People." And in her cycle of dying she renews herself again. In the story of the Bushman the moon gave fire to the ostrich in a feather and this bird of truth passed it on to man. Thus man partakes of all creation. Laurens van der Post presents the challenge to modern man in his closing paragraph:

"All this became for me, on my long journey home by sea, an image of what is wanted in the spirit of man today. We live in a sunset hour of time. We need to recognize and develop that aspect of ourselves of which the moon bears the image. It is our own shy intuitions of renewal, which walk in our spiritual night as Porcupine walked by the light of the moon, that need helping on the way. It is as if I hear the wind bringing up behind me the voice of Mantis, the infinite in the small, calling from the Stone Age to an age of men with hearts of stone, commanding us with the authentic voice of eternal renewal: 'You must henceforth be the moon. You must shine at night. By your shining shall you lighten the darkness until the sun rises again to light up all things for men.'"

—Martha Jaeger

Plato, *The Collected Dialogues*, edited by Edith Hamilton and Huntington Cairns (Pantheon, N. Y. 1961, 1606 pp., index, \$7.50.)

THE BOLLINGEN FOUNDATION has issued the whole of Plato, including the *Letters*, in a single, superbly designed volume. The paper is thin but opaque and readily pageable, the type handsome and clear. The index, no less than 134 pages, is cross-indexed, a virtue and a comfort on its own account, but especially important because the translators are diverse: Lane Cooper, F. M. Cornford, W. K. C. Guthrie, R. Hackforth, Michael Joyce, Benjamin Jowett, L. A. Post, W. H. D. Rouse, Paul Shorey, J. B. Skemp, A. E. Taylor, Hugh Tredennick, W. D. Woodhead, J. Wright. The advantages herein are several: The best of recent expert opinion is thus embodied; e.g., the nuptial number, which was unintelligible in Jowett's day, comes to us in this edition through Paul Shorey's *Republic*. The specialist provides his expertness in related dialogues; thus Cornford has the dialogues that deal directly with the nature of knowledge—the *Theaetetus*, the *Parmenides* and the *Sophist*. To Jowett are left the *Charmides*, *Laches*, *Menexenus*, the *Lesser* and the *Greater Hippias*, *Cratylus*, and that plum, the *Timaeus*. It might have been interesting and even valuable to represent Thomas Taylor, say, with the translation of one or two of these. The archaic manner is difficult, but the old boy worked with and conveyed conviction.

Where there is so much for which to be happy, it may seem ungrateful to raise any points whatever. But it may be in order to wonder when Plato may be tested by our contemporary science, to see whether he may not make good sense where he is most baffling. In the prefatory note to the *Parmenides*, Miss Hamilton quotes three sentences from the many which, she says, "appear to make sense and yet convey nothing to the mind." Yet modern physical theory also links "a one"—i.e., an open field potential—with "the other"—a standing wave system. If this concept were to be explained in lay language by someone who didn't claim fully to understand it (and was mostly interested in other things) and reported it at third hand, it might sound quite a bit as Plato does when done into English. "It seems," says Antiphon in the *Parmenides*, "that whether or not there is or is not a one [or Continuum], both that one and the others [sensed physical objects] alike are and are not." Which is to say, the Continuum is not—in the meaning it cannot be seen or felt—and the objects are not—in the meaning that they are ephemeral. Very rightly, Antiphon concludes, they "appear and do not appear to be," since the Continuum never appears to the senses, but only to the mind, and the others appear (to the senses) and do not appear (correctly, as they truly are) to the senses unaided by the mind. Naturally Socrates said "Most true," meaning just what a good Vedantist would say of the opening shlokas of Shankara's *Atman Anatman Viveka*!

One would like to hear what Heisenberg has to say about the Greek original of the three sentences Miss Hamilton quotes.

—L. E. Girard